Amendments to the Drawings

Figure 20 is amended to illustrate the processor 86 already referenced at page 17, line 4 of the specification.

Attachment: Replacement Sheet

Annotated Marked-Up Drawings

REMARKS

Applicant thanks Examiner Alexander for a very helpful interview with Dr. Bogen and the undersigned. The following remarks generally set forth the substance of the interview.

Claims 1, 3, 5, 6 and 7 were amended to substitute the term "dispensing assembly" for the term "microscope slide stainer" because, while there is implicit and inherent support for the term "microscope slide stainer" in the applications from which the present application claims priority, there is no explicit use of the term "microscope slide stainer." "Dispensing assembly" is the term used in the original filing of the applications from which the present application claims priority.

Claims 4-5 and 11-12 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. Claims 4 and 11 have been cancelled in view of amended claims 1 and 8 and claims 5 and 12 now depend from claims 1 and 8. As amended, claims 1 and 8 are believed to obviate the rejection.

Claims 1-7 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 6,783,733. Claims 8-14 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 15-21 of U.S. Patent Nos 6,541,261 and 6,673,620, respectively. A terminal disclaimer results in no reduction in term and is being filed herewith as to U.S. Patent Nos 6,783,733, 6,541,261, and 6,673,620 to expedite prosecution by obviating the obviousness-type double patenting rejection and is not an admission as to obviousness.

Claims 1-7 were also provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of co-pending Application No. 10/864,620. Claims 1-14 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 3-18 of co-pending Application No. 09/702,298. A terminal disclaimer has already been filed as to co-pending Application No. 09/702,298. A copy of the terminal disclaimer filed on April 12, 2004

is attached. A terminal disclaimer is being filed herewith as to co-pending Application No. 10/864, 620 to expedite prosecution by obviating the obviousness-type double patenting rejection; obviousness is not admitted.

The Examiner rejected Claims 1-2, 4-9, and 11-14 under 35 U.S.C. §102(b) as being anticipated by Rogers *et al.* (U.S. Patent No. 4,043,292). The Examiner rejected claims 1-14 as anticipated by Bogen (Patent Nos. 4,847,208 and 5,073,504) under 35 U.S.C. §102(b) and (e). The Examiner also rejected Claims 1-2, 4-9, and 11-14 under 35 U.S.C. §102(e) as being anticipated by Copeland *et al.* (U.S. Patent No. 5,654,200), Heidt *et al.* (U.S. Patent No. 5,089,229), and Kerr *et al.* (U.S. Patent No. 5,075,079). Since none of these references teach or disclose each and every limitation of the invention as claimed, it is respectfully submitted that none of these references anticipate the claimed invention.

At the interview, Dr. Bogen explained that the present invention was developed to enable random access processing of multiple microscope slides in different ways by applying the reagent to selected slides and selectively heating the slides. The random access process is distinguished from the prior batch processing, such as in the cited Rogers patent, in which all of the slides are processed in the same way. Although it is submitted that the original Claims distinguish over each of the cited references, in order to expedite prosecution, Claims 1 and 8 have been amended to include further details which support the random access processing. In particular, it is now recited that the platform supports plural heated surface areas for supporting microscope slides and plural temperature sensors. The Claims also recite the processor that controls the system as described in the paragraph bridging pages 11 and 12 of the specification. Figure 20 is amended to illustrate the processor 86 already referenced at page 17, line 4 of the specification.

The claim amendments are only made to expedite allowance, and Applicant reserves the right to refile the original claims in a continuation application.

The Examiner rejected Claims 1-2, 4-9, and 11-14 as anticipated by Rogers. The claimed invention is distinct from Rogers at least because Rogers does not teach a heated surface area

heated by a heater thereunder as claimed in the present application. Rogers discloses slides supported on a rotary carousel. The disclosed device utilizes the typical approach of moving the slides into a heated chamber. Specifically, in Figure 4 of Rogers the heating element 80 provides heat to air that is blown into the interior unit to heat the slides. In Figure 6, a radiant heater 90 was used to supply heat. The support elements 26 (Figures 2 and 3 of Rogers) on the carousel are not heated surface areas heated by a heater thereunder. Rather, they simply support the slides within the heated environment.

Figures 7 and 8 of Rogers do illustrate the conductive approach to heating. However, the device disclosed by figures 7 and 8 uses a stationary platform with moving slides. Thus, there is no teaching of a "liquid dispenser and platform being adapted for relative movement with respect to each other" as claimed in the independent claims in the present application.

Additional significant distinguishing features are the plurality of heated surface areas (claims 1, 8) that each support only one slide (claims 3, 10). The Rogers device does not have such a plurality of heated areas, and the one that it does have supports many slides. These features can be seen in Figure 7, whereby the heated platen 94 supports a plurality of slides 112.

This distinction has an important functional consequence. A large surface, such as the platen 94 of Rogers, typically has a high thermal mass. Therefore, a great deal of heat must be provided in order to warm the platen, which typically radiates the heat into the surrounding air. Inevitably, the surrounding components also warm up. Depending upon the degree of heat required, it can accelerate the degradation of nearby reagents that are dispensed from liquid dispensers. The heat can also degrade nearby electrical components and create a potential burn hazard. Limiting the heat approximately to the area of a slide provides for a more practical implementation of conductive heating. In fact, the Rogers device only surmounts these problems because it barely heats at all. Figure 5 depicts the temperature profile of the slides during staining, demonstrating that the instrument barely heats above room temperature (21-22°C). This was by design, as the instrument uses heat during staining to control for fluctuating ambient temperatures (column 5, lines 26-28).

The use of heaters underlying the slides thus allows for greater variation in the type of staining protocols that can be performed on an automated slide stainer because such a device is capable of safely and accurately reaching a higher temperature. Consequently, staining protocols that require heating to a temperature substantially above room temperature can be performed on the disclosed device whereas the device disclosed in Rogers would be unsuitable for such a use.

Plural heated surface areas, each heated by a heater thereunder, has also facilitated independent temperature control, presented in a subsequent filing. Additionally, a platform having plural temperature sensors for sensing temperature of respective heated surface areas, as now recited in Claims 1 and 8, further enabled the design of a microscope slide stainer with independent temperature control.

Additionally, Claims 1 and 8 now recite a heated surface area, heated by an electric heater thereunder, the heated surface area being in contact with and underlying a microscope slide bearing a biological sample. Conversely, Rogers discloses slides supported on a single surface area that is heated by convection.

The Examiner rejected claims 1-14 as anticipated by two Bogen patents ("the '208 patent" and "the '504 patent" respectively). The claimed invention is distinct from both the '208 patent and the '504 patent at least because neither of these patents disclose any kind of heated surface area. The Examiner points to language describing an incubation chamber for evidence that the '208 patent and the '504 patent teach "a plurality of incubation chambers (4) which meet the claimed limitations of a 'heated surface area supports only one slide' and the plural chambers the limitations of 'plural heated surfaces'." However, neither the '208 patent nor the '504 patent discloses any kind of heated surface. The incubation chamber(4) described is simply a chamber consisting of four walls capable of surrounding the tissue section of a microscope slide. The chamber is not heated; incubation would be at room temperature. Nowhere in either of these patents is a heated surface area disclosed. Thus, neither the'208 patent nor the '504 patent anticipates the claimed invention.

The Examiner also rejected claims 1-2, 4-9, and 11-14 as anticipated by Copeland. The claimed invention is distinct from the invention disclosed in Copeland because the reference does not disclose or teach a heater in the method or apparatus for the processing of microscope slides. The Examiner points to Figures 12-13 of Copeland as teaching "application of a heated rinse solution to the slides which has been read on the claimed 'heater thereunder, the heated surface area being in contact with and underlying a microscope slide'." However, a heater to one of ordinary skill in the art is a device that generates heat. The use of a heated rinse solution would not suggest to one of ordinary skill in the art that a product of Copeland would include a heated surface area, heated by a heater. Further, the rinse solution is not "thereunder." To further clarify the distinction, Claims 1 and 8 have been amended to recite an "electric heater."

Additionally, Copeland teaches convective heating rather than contact (conductive) heating to heat the slides. (Column 3, lines 8-22). This means that the slides of Copeland are simply warmed by air that has been heated; whereas, the microscope slides of the claimed invention are heated on "a heated surface area, heated by an electric heater thereunder."

The Examiner also rejected claims 1-2, 4-9, and 11-14 as anticipated by Heidt. The claimed invention is distinct from the invention disclosed in Heidt for at least the following reasons.

First, Heidt does not disclose or teach a heated surface area, heated by a heater thereunder, that is in contact with and underlying a microscope slide. In fact, Heidt teaches that there can be no heated surface in contact with and underlying a microscope slide. For the invention disclosed in Heidt to work an optical light beam must shine from beneath to read the color intensity of the "slide," requiring that the space below the slide be open.

Second, Heidt does not disclose a microscope slide. Heidt does not relate to staining of microscope slides but rather to analysis of blood serum. A drop of blood is dispensed onto various chemical analyte "slides," each of which is impregnated with a reagent that causes a color to develop upon reacting with substances in serum. That color is measured by

reflectometry, by shining a light beam on the underside of the chemical analyte "slide." The chemical analyte "slide" disclosed in Heidt is designed to be chemically reactive with the blood serum under certain conditions. All claims contain the limitation of "microscope slide." A microscope slide is, by necessity, non-reactive. One of ordinary skill in the art would not equate the chemical analyte "slide" of Heidt with the microscope slide of the present invention.

Further, Heidt, like Rogers, relies on convective heating and not on a heated surface area heated by a heater thereunder as recited in all the claims of the present application. The supports for the slides do not provide heat to the slides. Instead, Heidt discloses a convective heating system with the heaters 382 and 395 heating the air within the cabinet enclosure by convection and radiation. While the turntable 50, including receiving slots 52 (see Fig. 10A of Heidt), does receive slides about its periphery, and the slides are heated while positioned over the slots 52, the station that supports the slide does not comprise a heated surface area heated by a heater thereunder. Further, the system does not include plural temperature sensors for sensing temperature of respective surface areas.

The Examiner also rejected Claims 1-2, 4-9, and 11-14 as anticipated by Kerr. The claimed invention is distinct from Kerr at least because Kerr does not disclose a dispensing assembly. Kerr also does not disclose a heated surface area heated by a heater thereunder.

Kerr, like Heidt, is directed toward use of a chemical analyte "slide" for use in clinical chemistry for measuring the concentrations of various chemicals in blood. Again, these chemical analyte "slides" are not microscope slides as claimed by the present invention. (See analysis of Heidt *supra*).

Similarly, Kerr, like Heidt, does not disclose a heated surface area heated by a heater thereunder. In order to detect any color change associated with the chemical reaction between the sample and the chemical analyte "slide," a clear optical pathway must be maintained underneath the chemical analyte "slide" so as to read the color intensity spectrophotometrically. (See analysis of Heidt *supra*.)

Since none of the references cited by the Examiner teach or disclose each and every limitation of claims of the present invention, the rejections under 35 U.S.C. §102(b) and (e) are respectfully traversed.

The Examiner rejected Claims 3 and 10 under 35 U.S.C. §103(a) as being unpatentable over Heidt, Copeland, Kerr, or Rogers. The Examiner states that each of these references teaches "a plurality of slides heated by a plural heating means and are silent to the claimed heating surface supporting a single slide." However, as discussed *supra*, none of the references cited by the Examiner for the rejection under §103(a) teaches a microscope slide on a heated surface area, heated by a heater thereunder, as claimed. Heidt, Copeland, Kerr, and Rogers fail to teach, disclose, or suggest the use of contact (conductive) heating in a dispensing assembly wherein the microscope slides are on a moving platform.

The Examiner suggests that it is within the skill of the art to duplicate parts to achieve a multiplied effect. Since none of the references cited by the Examiner disclose a platform having a heated surface heated by a heater as claimed by the present application, there is nothing in the prior art to be duplicated.

Since none of the references cited by the Examiner form a basis for an obviousness rejection, the rejections under 35 U.S.C. §103(a) are respectfully traversed.

The Examiner's attention is directed to the previously cited patent 5,439,649 to Tseung, column 12, particularly the final two paragraphs. Claim 1 distinguishes the Tseung system in that the dispensing assembly of the present application comprises a platform supporting a plurality of microscope slides, the platform having a heated surface area, heated by a heater thereunder, the heated surface area being in contact with and underlying a microscope slide. By contrast, the slides in Tseung are supported on a tray 190 having openings therein. Heating is provided by a separate heating block 200. Because the heating elements are not integrated into the slide support, the slide tray 190 must be positioned so as to closely align the slide undersurfaces with the heater block 200 surface, so that they make close contact if the

mechanical tolerances are correct (column 12, line 55, '649 Tseung patent). This design does not foster close, firm contact between the heating surface and the microscope slide, and would result in poor thermal coupling. In the Applicant's experience, close thermal coupling, resulting in an even and repeatable heating of the slides to a specified temperature, is important for proper tissue staining results. Therefore, claim 1 distinguishes at least in reciting a platform supporting a plurality of microscope slides, the platform having a heated surface area, heated by a heater thereunder, rather than having a separate slide tray that supports the slides and which is brought into close approximation with a heating surface.

Information Disclosure Statement

A Supplemental Information Disclosure Statement (SIDS) is being filed concurrently herewith. Entry of the SIDS is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By _____

James M. Smith
Registration No. 28,043
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133
Dated: 1/20/6

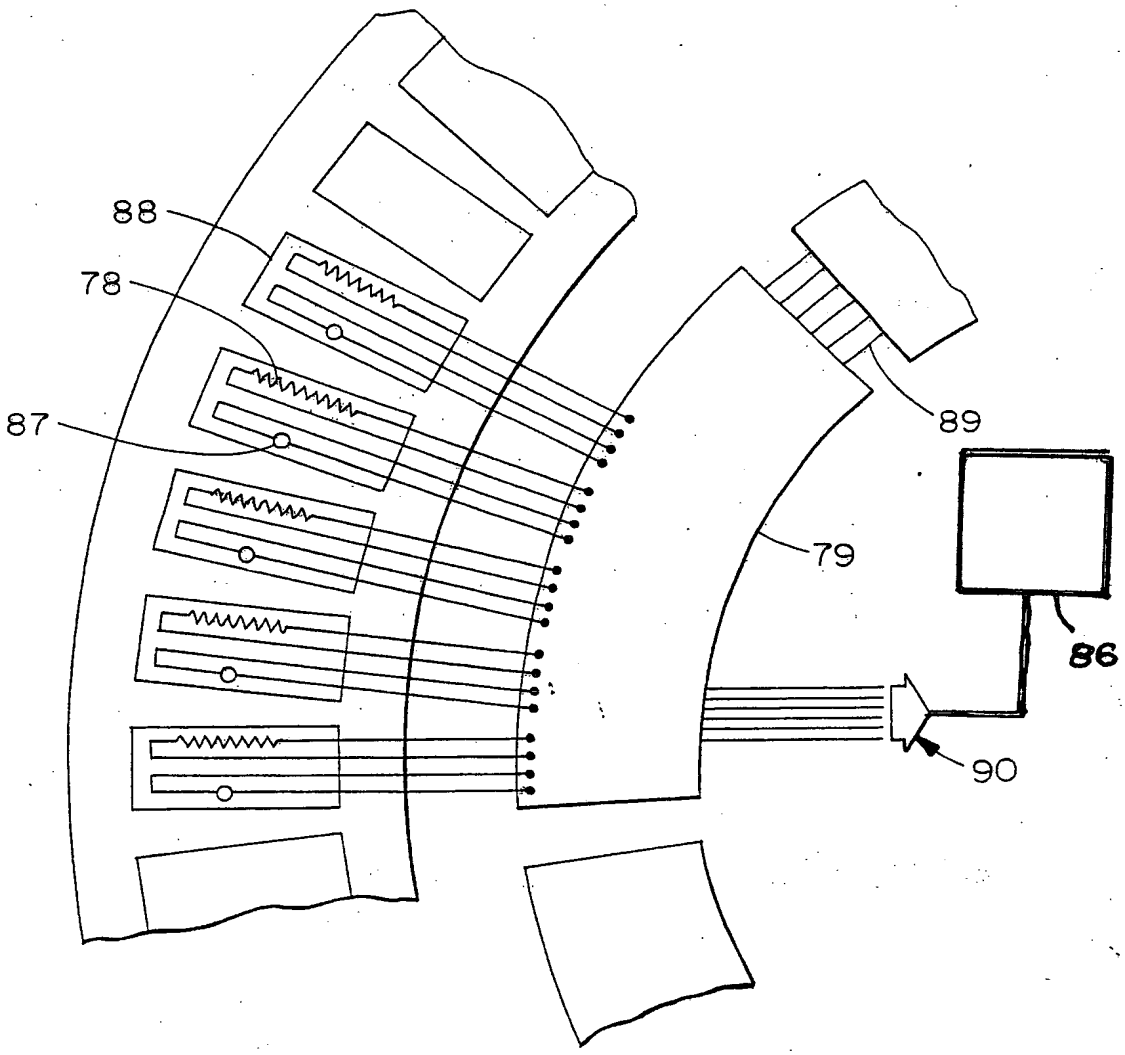

FIG. 20